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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,901	03/29/2004	Ueli Breitschmid	2360-0406P	1090

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EXAMINER
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CHIN, RANDALL E

ART UNIT	PAPER NUMBER
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1744

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/04/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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# Office Action Summary

Application No.

10/810,901

Applicant(s)

BREITSCHMID, UELI

Examiner

Randall Chin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on the RCE filed 15 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,9,10,14-16 and 18-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,9,10,14-16 and 18-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6, 9, 10 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 800 781 (hereinafter EPO '781).

EPO '781 discloses an interdental brush comprising two wire sections formed of austenitic steel and having a diameter of 0.3 mm or less (p. 3, lines 21-22 and 27-28, for example), and filaments retained between the two wire sections which are twisted with one another (Figs. 1-3; p. 2, lines 5-8), wherein the austenitic steel includes less than 0.05% nickel by weight. Specifically, EPO '781 teaches in "first," "second," and "third" aspects of the invention (p. 2, line 54 to p. 3, line 8) examples where nickel is **not even included** in the brush wire thus meeting the broad claim limitation "less than 0.05% nickel by weight." Here, EPO '781 explicitly recites that the brush wire contains "**at least**" iron, chromium, manganese and nitrogen (emphasis added) and the nickel amount would be 0 wt% (i.e., zero). Therefore, **nickel is never required** in the composition for the brush wire. Note also, in subsequent "aspects" of the invention (e.g., "fourth," "fifth," etc. on p. 3, lines 9-51), **nickel is included/mentioned** in the brush wire composition. Claims 1-3 of EPO '781 similarly teaches the aforementioned brush wire

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which is void of any nickel material. The fact that **nickel** is never explicitly mentioned in the recited composition or combination of the first, second or third aspects of the invention is an indication that *even if nickel* were present in such composition or combination, as Applicant alleges, such nickel amounts would be so minimal or infinitesimal and so close to zero as to render the nickel not worthy of mention or of nil effect in the first, second or third aspects of the invention.

Alternatively with respect to claim 1, EPO '781 teaches specifically in a "sixth" aspect of the invention that the brush wire contains nickel "less than 1.0 wt%" (p. 3, lines 20-25, for example) which is deemed to anticipate the recited limitation in claim 1 of "less than 0.05% nickel by weight" with "sufficient specificity" (see MPEP 2131.03 II.)

As for claim 2, EPO '781 teaches a wire diameter of 0.15 to 0.35 mm (p. 3, lines 27-28) and which meets the limitation of the two wire sections having a diameter of more than 0.15 mm.

As for claims 3, 4, 9 and 10, EPO '781 is already concerned with providing adequate tensile strength to avoid breakage (p. 2, lines 38-40 and p. 3, lines 56-58) where the wire has tensile strength of not less than 40kfg/mm squared which meets the claimed limitation of 1000 or 1200 N/mm squared.

As for claim 6, 14, 15 and 16 reciting that the wire sections are stretched or drawn out, such a recitation appears to be drawn to method step not germane to patentability in apparatus claims.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6, 9, 10 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over EPO '781.

As already disclosed above, EPO '781 discloses an interdental brush comprising two wire sections formed of austenitic steel and having a diameter of 0.3 mm or less (p. 3, lines 21-22 and 27-28, for example), and filaments retained between the two wire sections which are twisted with one another (Figs. 1-3; p. 2, lines 5-8).

Even assuming arguendo that the EPO '781 disclosure of "nickel content is less than 1.0 wt%" fails to teach with "sufficient specificity" (in accordance with MPEP 2131.03 II.) that the austenitic steel includes "less than 0.05% nickel by weight", EPO '781 specifically teaches in "first," "second," and "third" aspects of the invention (p. 2, line 54 to p. 3, line 8) examples where nickel is not even included in the brush wire. EPO '781 explicitly recites that the brush wire contains "at least" iron, chromium, manganese and nitrogen (emphasis added) and the nickel amount would be 0 wt% (i.e., zero). Therefore, nickel is never required in the composition for the brush wire. Note also, in subsequent "aspects" of the invention (e.g., "fourth," "fifth," etc. on p. 3, lines 9-51), nickel is included/required in the brush wire composition. Claims 1-3 of EPO '781

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similarly teaches the aforementioned brush wire which is void of any nickel material.

Therefore, it would have been obvious to one of ordinary skill in the art to have modified EPO '781 by providing an amount of nickel in the brush wire **anywhere** from 0 wt% (i.e., zero) **all the way up to** 1.0 wt % (since EPO '781 already explicitly teaches nickel in an amount "less than 1.0 wt%" at p. 3, lines 20-25, for example, and also teaches examples where nickel is not even included in the brush wire composition at p. 2, line 54 to p. 3, line 8 and therefore, 0.05% nickel by weight is included or encompassed by this range) in order to provide optimal characteristics for the brush wire in terms of tensile strength, stability, prolonged life and usage, nontoxic features, etc and thus only the expected results would be obtained. This would include the specific value of 0.05% nickel.

Further, absent any crucial unexpected results or criticality for the specific claimed limitation "less than 0.05% nickel by weight", such claimed limitation is met by EPO '781 as just explained. It should be noted that Applicant's specification on p. 2, lines 16-27 recites that "[u]sing nickel-free wire, in addition, increases the biocompatibility of the brush, without any protective coatings being necessary." However, such a recitation is not deemed an unexpected result for the specific claimed limitation "less than 0.05% nickel by weight". The specification is devoid of any significant criticality or unexpected results for the claimed limitation "less than 0.05% nickel by weight".

As for claim 2, EPO '781 teaches a wire diameter of 0.15 to 0.35 mm (p. 3, lines 27-28) and which meets the limitation of the two wire sections having a diameter of more than 0.15 mm.

As for claims 3, 4, 9 and 10, EPO '781 is already concerned with providing adequate tensile strength to avoid breakage (p. 2, lines 38-40 and p. 3, lines 56-58) where the wire has tensile strength of not less than 40kfg/mm squared which meets the claimed limitation of 1000 or 1200 N/mm squared.

As for claim 6, 14, 15 and 16 reciting that the wire sections are stretched or drawn out, such a recitation appears to be drawn to method step not germane to patentability in apparatus claims.

5. Claims 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over EPO '781 in view of Japan 8-308637 (hereinafter Japan '637).

In order to avoid redundancy, all of the Examiner's reasoning and explanations based on EPO '781 above are being incorporated herein for purposes of rejecting claim 18. With the exception of specific elements within the austenitic steel now being claimed, claim 18 is similar to claim 1. EPO '781 teaches among the disclosed "aspects" or embodiments all of the elements of the austenitic steel (i.e., manganese, nitrogen, carbon, chromium, molybdenum, silicon, phosphorus, iron, and nickel; see p. 2, line 49 to p. 3, line 51) in some combination or another with the exception of titanium. The reference to Japan '637 teaches an interdental brush which can include a titanium nickel element for the austenitic steel. It would have been obvious to one of ordinary

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skill in the art to have modified the EPO '781 interdental brush such that the austenitic steel contains all of the claimed elements, i.e., manganese, nitrogen, carbon, chromium, molybdenum, silicon, phosphorus, iron, nickel, and titanium as suggested by Japan '637, **since all of these elements are well known and utilized within austenitic steel for interdental brushes** and all of the elements contribute to optimal characteristics for the brush wire in terms of tensile strength, stability, prolonged life and usage, nontoxic features and only the expected results would be obtained.

As for the specific percentages by weight in proportion of chromium, manganese, nitrogen, molybdenum, carbon, silicon, phosphorus, and titanium in the steel being recited throughout claims 19 through 29, one of ordinary skill in the art would find it obvious to select the optimal percentages in terms of tensile strength, stability, processing, prolonged life and usage, and nontoxic features. **All of the recited elements are already known to be used in austenitic steel, more particularly, in interdental wire brushes as taught by EPO '781 and Japan '637.** Further, absent any crucial unexpected results or criticality for these specific percentages by weight in proportion, such claimed limitations are deemed met by EPO '781 and Japan '637. Further, there is no indication of any criticality or unexpected results for these well known elements used in the austenitic steel in their specifically claimed percentages or proportions in claims 18 through 29 or in the specific combination recited in claim 18.

### ***Conclusion***



6. Applicant's arguments filed 06 March 2007 have been fully considered but they are not persuasive.

Applicant's arguments are primarily based on the assertion that the disclosed range of nickel being less than or not more than 1.0% in EPO '781 (or Sunstar) is so broad as to not disclose with "sufficient specificity" the claimed narrow range to constitute an anticipation of the claims. Applicant further argues that one skilled in the art would not consider further decreasing the amount of nickel, in particular not by a factor of 10 to the inventive nickel content of less than 0.05% by weight, in order to solve the problem of the present invention given that EPO '781 is concerned with controlling the amount of manganese and not nickel. Applicant further asserts that the mere fact that EPO '781 discloses and/or claims some embodiments that do not specifically recite the inclusion of nickel does not necessarily require that these embodiments exclude nickel.

It is the position of the Examiner that EPO '781 teaches with "sufficient specificity" the claimed limitation of nickel being less than 0.05 % nickel by weight. EPO '781 teaches specifically in a "sixth" aspect of the invention that the brush wire contains nickel "less than 1.0 wt%" (p. 3, lines 20-25, for example) which is deemed to anticipate the recited limitation in claim 1 of "less than 0.05% nickel by weight" with "sufficient specificity" (see MPEP 2131.03 II.)

Even assuming *arguendo* that the EPO '781 disclosure of "nickel content is less than 1.0 wt%" fails to teach with "sufficient specificity" (in accordance with MPEP 2131.03 II.) that the austenitic steel includes "less than 0.05% nickel by weight", EPO

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'781 specifically recites in **“first,” “second,” and “third” aspects** of the invention (p. 2, line 54 to p. 3, line 8) **examples where nickel is not even included or even mentioned** in the brush wire composition. Applicant argues that the fact that EPO '781 discloses and/or claims some embodiments that do not specifically recite the inclusion of nickel does not necessarily require that these embodiments exclude nickel. The fact that **nickel** is never explicitly mentioned in the recited composition or combination of the first, second or third aspects of the invention is an indication that *even if nickel* were present in such composition or combination, as Applicant alleges, **such nickel amounts would be so minimal or infinitesimal and so close to zero as to render the nickel not worthy of mention or of nil effect** in the first, second or third aspects of the invention. Furthermore, looking at the first, second and third aspects of the invention **where nickel is not included or even mentioned in the compositions**, one can see that the wt % of nitrogen being not less than 0.10% or not less than 0.65% is **already so small or infinitesimal** an amount that for nickel to **not even be included or mentioned**, any possible nickel amount would be that much smaller or of nil effect than those explicitly disclosed for nitrogen.

As already stated above and in the alternative, it would have been obvious to one of ordinary skill in the art to have modified EPO '781 by providing an amount of nickel in the brush wire **anywhere** from 0 wt% (i.e., zero) **all the way up to 1.0 wt %** (since EPO '781 already explicitly teaches nickel in an amount “less than 1.0 wt%” at p. 3, lines 20-25, for example, and also teaches examples where nickel is **not even included or mentioned** in the brush wire composition at p. 2, line 54 to p. 3, line 8 **and therefore,**

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0.05% nickel by weight is included or encompassed by this range) in order to provide optimal characteristics for the brush wire in terms of tensile strength, stability, prolonged life and usage, nontoxic features, etc and thus only the expected results would be obtained. This would include the specific value of 0.05% nickel.

Furthermore, no specific evidence has been provided by Applicant based on criticality for the claimed limitation "less than 0.05% nickel by weight" and **absent any unexpected results or criticality**, such claimed limitation is deemed met by EPO '781 as explained. It should be noted that Applicant's specification on p. 2, lines 16-27 recites that "[u]sing nickel-free wire, in addition, increases the biocompatibility of the brush, without any protective coatings being necessary." However, such a recitation is not deemed an unexpected result for the claimed limitation "less than 0.05% nickel by weight". The specification is devoid of any significant criticality or unexpected results for the claimed limitation "less than 0.05% nickel by weight". Additionally, any unexpected results or criticality must be commensurate in scope with the entire claimed range, particularly, "less than 0.05% nickel by weight". In other words, **for the entire claimed range** of "less than 0.05% nickel by weight," the results must be critical or unexpected. Further, no convincing evidence has been presented as to why the claimed range is non-obvious over the broader range of EPO '781.

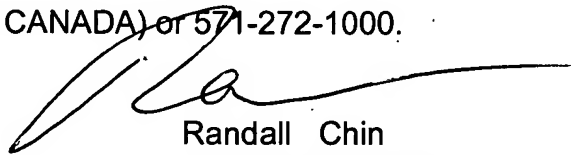
For all of the foregoing reasons, the rejection of claims 1-4, 6, 9, 10, 14-16 and 18-29 are deemed proper.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randall Chin whose telephone number is (571) 272-1270. The examiner can normally be reached on Monday through Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Randall Chin  
Primary Examiner  
Art Unit 1744